

# UNDERWATER BRIDGE INSPECTION REPORT

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STRUCTURE NO. 73533

CSAH NO. 71

OVER THE

SAUK RIVER

DISTRICT 3 - STEARNS COUNTY

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PREPARED FOR THE  
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY  
COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 87)

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 73533, Piers 1 and 2, were in very good to good condition with no structurally significant defects observed. A minor accumulation of timber debris was observed on the channel bottom along the north side of Pier 2. The channel bottom appeared to be in stable condition with no evidence of significant scour or appreciable changes since the previous inspection.

INSPECTION FINDINGS:

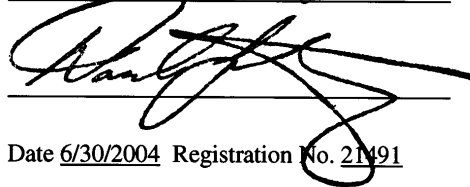
- (A) The concrete of the piers was in good and sound condition with no notable defects.
- (B) A minor accumulation of branchy timber debris was observed along the upstream north side of Pier 2.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

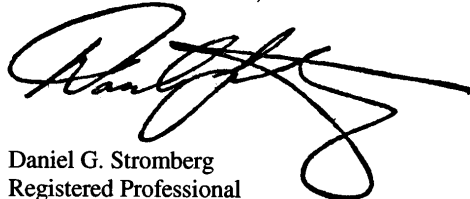
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

\_\_\_\_\_  
Daniel G. Stromberg

  
Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg  
Registered Professional  
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 73533

Feature Crossed: The Sauk River

Feature Carried: CSAH No. 71

Location: District 3 - Stearns County

Bridge Description: The superstructure consists of three spans of multiple steel beams supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. The footings of both the abutments and piers are supported by concrete piles. The piers are numbered 1 and 2 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 28, 2002

Weather Conditions: Rain, " 45EF

Underwater Visibility: " 1 foot

Waterway Velocity: Negligible/None.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers each consist of five cylindrical concrete columns connected by a reinforced concrete diaphragm extending from the top of the pier down ten feet. The columns sit on a common rectangular footing founded on piles.

Maximum Water Depth at Substructure Inspected: Approximately 11 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the west end of Pier 2.

Water Surface: The waterline was approximately 10.9 feet below reference.  
Waterline Elevation = 1085.4.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 8

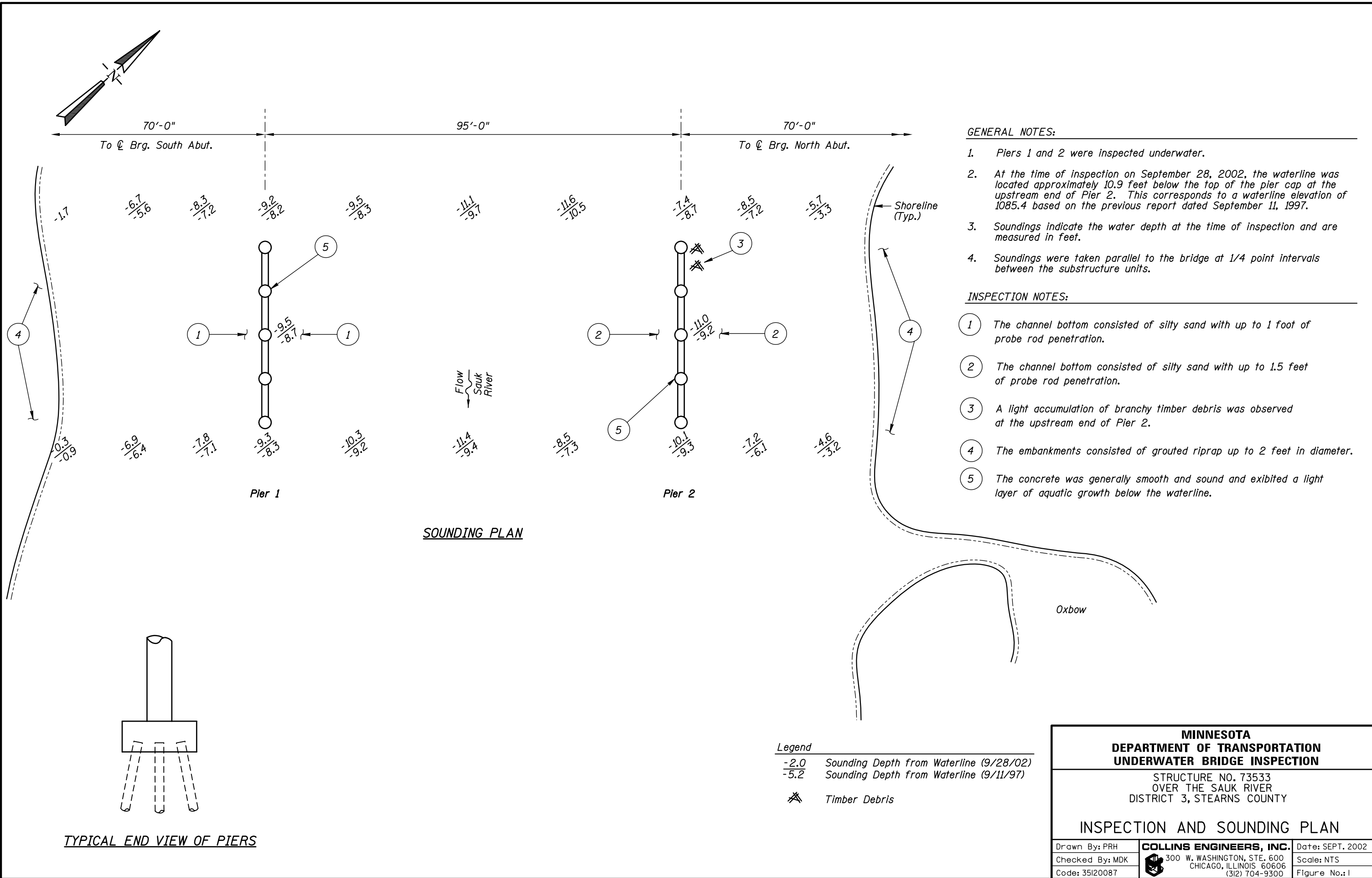
Item 61: Channel and Channel Protection: Code 8

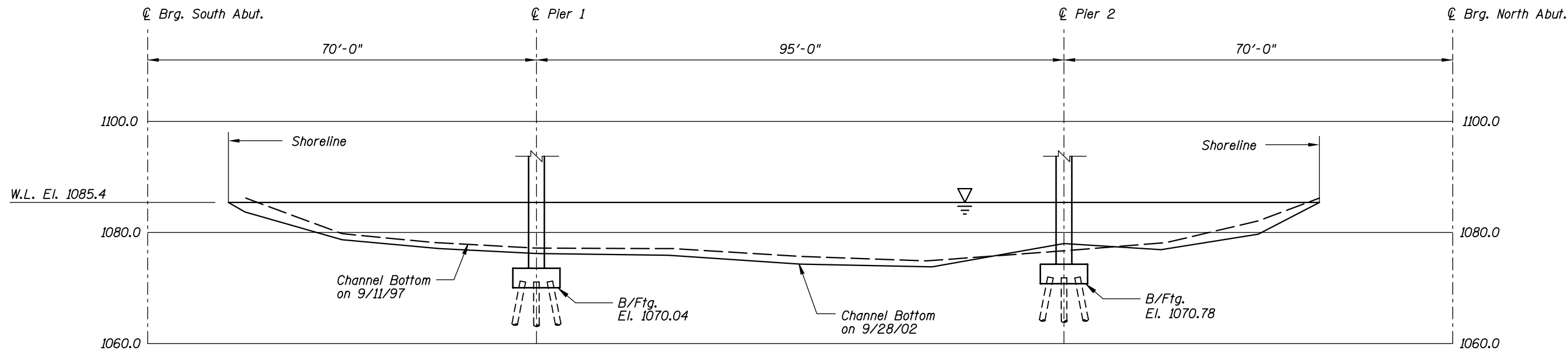
Item 92B: Underwater Inspection: Code B/9/02

Item 113: Scour Critical Bridges: Code I/95

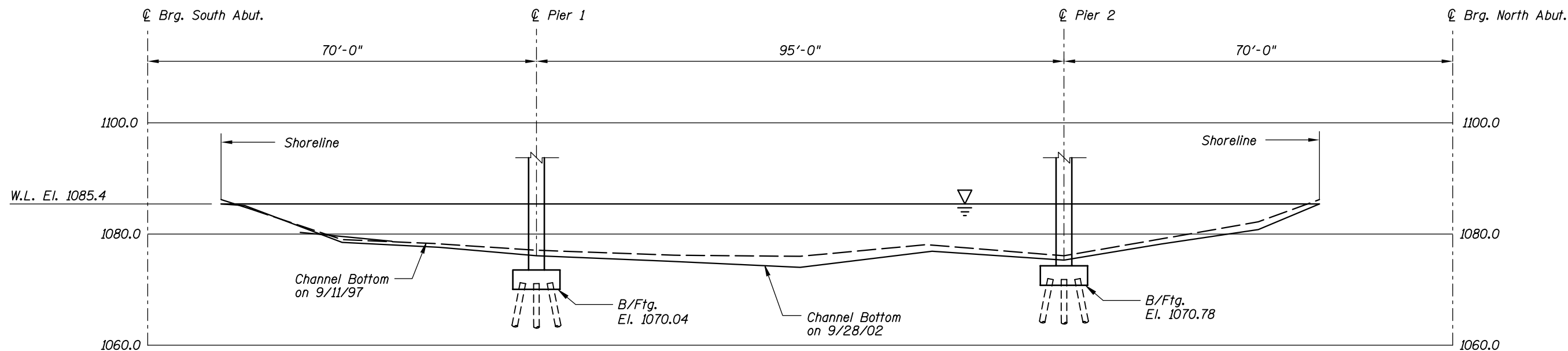
Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

\_\_\_\_\_ Yes   X   No





UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:  
Refer to Figure 1 for General Notes.

**MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
UNDERWATER BRIDGE INSPECTION**

STRUCTURE NO. 73533  
OVER THE SAUK RIVER  
DISTRICT 3, STEARNS COUNTY  
**UPSTREAM AND DOWNSTREAM  
FASCIA PROFILES**

Drawn By: PRH  
Checked By: MDK  
Code: 35I20087

**COLLINS ENGINEERS, INC.**  
300 W. WASHINGTON, STE. 600  
CHICAGO, ILLINOIS 60606  
(312) 704-9300

Date: SEPT. 2002  
Scale: 1"=20'  
Figure No.: 2



Photograph 1. Overall View of the Structure, Looking Southeast.



Photograph 2. View of Pier 1, Looking Southeast.





Photograph 3. View of Pier 2, Looking Northwest.



MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES  
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 28, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: 73533

WEATHER: Rain, " 45EF

WATERWAY CROSSED: The Sauk River

DIVING OPERATION:   X       SCUBA       SURFACE SUPPLIED AIR  
OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: Scuba, Scraper, Sounding Pole, Probe Rod, Lead Line, Camera

TIME IN WATER: 12:15 p.m.

TIME OUT OF WATER: 12:40 p.m.

WATERWAY DATA: VELOCITY Negligible/None

VISIBILITY " 1 foot

DEPTH 11 feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: Overall, the concrete was sound and in very good condition with no notable defects. A minor accumulation of branchy timber debris was observed along the upstream nose of Pier 2. The channel bottom appeared to be in stable condition with no appreciable changes observed since the previous inspection.

FURTHER ACTION NEEDED: \_\_\_\_\_ YES \_\_\_\_X\_\_\_\_ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION  
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 73533  
INSPECTORS Collins Engineers, Inc.  
ON-SITE TEAM LEADER Shirley M. Walker, P.E.  
WATERWAY CROSSED The Sauk River

INSPECTION DATE September 28, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	9.5'	N	8	N	9	N	8	8	N	N	N	8	8	N	N	N	N	N
	Pier 2	11.0'	N	8	N	9	N	8	8	N	N	7	7	8	N	N	N	N	N

\*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete was sound and in very good condition with no notable defects. A minor accumulation of branchy timber debris was observed along the upstream nose of Pier 2. The channel bottom appeared to be in stable condition with no appreciable changes observed since the previous inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO. USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.